

⑤  $x = \tan y$

$$1 = \sec^2 y \frac{dy}{dx}$$

$$\frac{1}{\sec^2 y} = \frac{dy}{dx}$$

$$\cos^2 y = \frac{dy}{dx}$$

⑥  $x = \sin y$

$$1 = \cos y \cdot \frac{dy}{dx}$$

$$\frac{dy}{dx} = \frac{1}{\cos y} = \sec y$$

⑦  $x + \tan(xy) = 0$

$$1 + \sec^2(xy) \left( (1)y + x(1) \frac{dy}{dx} \right) = 0$$

$$1 + \sec^2(xy) \left( y + x \frac{dy}{dx} \right) = 0$$

$$\sec^2(xy) \left( y + x \frac{dy}{dx} \right) = -1$$

$$y + x \frac{dy}{dx} = \frac{-1}{\sec^2(xy)}$$

$$x \frac{dy}{dx} = \frac{-1}{\sec^2(xy)} - y$$

$$\frac{dy}{dx} = \frac{-1}{x \sec^2(xy)} - \frac{y}{x}$$

$$= \frac{-1}{x} \cos^2(xy) - \frac{y}{x}$$

⑧  $x + \sin y = xy$

$$1 + \cos y \frac{dy}{dx} = (1)(y) + (x)(1) \frac{dy}{dx}$$

$$1 + \cos y \frac{dy}{dx} = y + x \frac{dy}{dx}$$

$$\cos y \frac{dy}{dx} - x \frac{dy}{dx} = y - 1$$

$$\frac{dy}{dx} (\cos y - x) = y - 1$$

$$\frac{dy}{dx} = \frac{y-1}{\cos y - x}$$

⑨  $x^2 + y^2 = 13$  @  $(-2, 3)$

$$2x + 2y \frac{dy}{dx} = 0$$

$$2y \frac{dy}{dx} = -2x$$

$$\frac{dy}{dx} = \frac{-2x}{2y} = -\frac{x}{y}$$

$$f'(x) = f'(-2) = \left( \frac{2}{3} \right)$$

⑩  $x^2 + y^2 = 9$  @  $(0, 3)$

$$2x + 2y \frac{dy}{dx} = 0$$

$$\frac{dy}{dx} = \frac{-2x}{2y} = -\frac{x}{y} = \frac{0}{3} = 0$$